ATTACHMENT J.4.59

STORMWATER POLLUTION PEVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN

RM-0039

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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STORMWATER POLLUTION PREVENTION PLAN

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RM-0039

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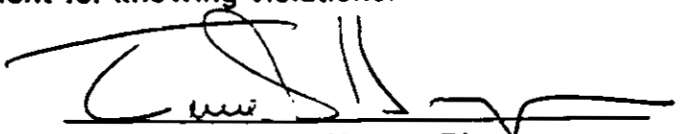

Terence D. Hagen, Director
Environmental Compliance

ACRONYMS

ACOE	U.S. Army Corps of Engineers
ARP	Aquifer Restoration Program
BDN-ETS	Biodenitrification-Effluent Treatment System
BSL	Bio-surge Lagoon
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CWA	Clean Water Act
DOE	U.S. Department of Energy
EPA	United States Environmental Protection Agency
FMPC	Feed Materials Production Center
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FTF	Fire Training Facility
FRL	Final Remediation Level
HNT	High Nitrate Tank
HWMU	Hazardous Waste Management Unit
IROD	Interim Record of Decision
MSL	Mean Sea Level
NPDES	Nation Pollutant Discharge Elimination System
µg/g	Micrograms/gram
PCB	Polychlorinated Biphenyl
pCi/g	Picocuries/gram
OAC	Ohio Administrative Code
Ohio EPA	Ohio Environmental Protection Agency
OU	Operable Unit
ORC	Ohio Revised Code
OSDF	On-site Disposal Facility
RA	Removal Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
RIMIA	Receiving and Incoming Materials Inspection Area
ROD	Record of Decision
RSO	Remedial Support Operations Division
SARA	Superfund Amendments and Reauthorization Act of 1986
SCS	Soil Conservation Service
SPCC	Spill Prevention Control and Countermeasure
SSOD	Storm Sewer Outfall Ditch
SWPPP	Stormwater Pollution Prevention Plan
SWPPT	Stormwater Pollution Prevention Team
USEPA	United States Environmental Protection Agency
TSS	Total Suspended Solids
WAC	Waste Acceptance Criteria

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5.2.6.3 SEEPAGE CONTROL AT THE SOUTHFIELD AND INACTIVE FLYASH PILE

Seepage Control at the Southfield and Inactive Flyash Pile, (RA No. 30) is being conducted to reduce impacts to the Great Miami Aquifer from contaminated seepage from the South Field and Inactive Flyash Pile and infiltration through the sediment at the southeast corner of the SF. The RA involved construction of a series of collection ditches and a sump to collect and convey stormwater runoff from these areas to the AWWT facility.

5.2.7 AREAS OF PLANNED FUTURE INDUSTRIAL ACTIVITY

As of March, 1996 no new industrial activities were currently scheduled to be conducted within the *4004 watershed basin. Remediation of the Southfield and Inactive Flyash Pile will be conducted in accordance with the schedule established under the OU-2 ROD.

5.3 BASIN DESCRIPTION - OUTFALL *4005

5.3.1 TOPOGRAPHY AND LOCATION

Stormwater outfall *4005 is located at a north latitude of 39° 17' 50" and a west longitude of 84° 41' 49" and drains an approximately 81.62 acre watershed along the eastern bank of Paddys Run Creek, directly west of the former production area as shown in Figure 2-1. Topography within the basin ranges from a high point of approximately 580 feet above mean sea level (MSL) along the north reaches of the basin to a low point of approximately 550 feet MSL near the outfall to Paddys Run.

5.3.2 HYDROLOGY

A small perennial drainage ditch that originates near Building 51 in the former production area flows through the middle of the *4005 watershed basin in a westerly direction toward Paddys Run. Approximately 0.63 acres of jurisdictional wetlands were identified in association with this ditch during the 1993 site-wide wetland delineation. The majority of the watershed basin is vegetated with brush and grass. Approximately 3.2 acres of the 81.62 acre basin are classified as being impervious.

5.3.3 SOIL MORPHOLOGY

Soils within the *4005 watershed basin consist primarily of somewhat poorly drained to well drained silt loams, moderately well drained silty clay loams, and somewhat poorly drained silt loams. Hydrologic soil group classifications range from A to D. Typical soils encountered within the *4005 drainage basin include Fincastle-Urban land complex, Genesee loam, Hennepin silt loam, Henshaw silt loam, Markland silty clay loam, and Martinsville silt loam. A map showing the location of soil types at the Fernald Site is included in Figure 2-3.

5.3.4 STORMWATER DATA HISTORY

Samples from several runoff events were collected at outfall *4005 to support preparation of the 1992 FEMP NPDES Stormwater Permit Application that was submitted to OEPA on October 29, 1992. A table summarizing analytical data on these samples is included in Appendix C of this Plan. Pollutants identified for analysis in the 1992 FEMP NPDES Stormwater Permit application were selected primarily on the basis of process knowledge of activities occurring within the *4005 watershed basin and sampling records collected as part of the ongoing RI/FS process for various OUS at the site.

Biannual sampling is also being conducted at outfall *4005 in accordance with the provisions of the current FEMP NPDES Permit (Ohio EPA Permit No. 1IO00004*ED). To date only one NPDES Permit driven sampling event has occurred at outfall *4005, the results of which are also summarized in Appendix C. NPDES permit driven monitoring requirements for outfall *4005 include: total suspended solids, oil and grease, nitrogen-ammonia, nitrogen-nitrite + nitrate, total phosphorous, total fluoride, total recoverable nickel, total recoverable silver, total recoverable lead, total recoverable chromium, total recoverable copper, dissolved hexavalent chromium, flow, and pH.

5.3.5 AREAS OF INDUSTRIAL ACTIVITY

The majority of the *4005 watershed basin is wooded. However, intermittent areas of grass occur throughout the basin, particularly near the K-65 silos and waste pit area. Areas of industrial activity currently located within the *4005 watershed basin include the 50,000 gallon high nitrate tank, two 1,000,000 gallon temporary nitrate tanks, construction rubble, and the methanol feed tank.

5.3.5.1 HIGH/LOW NITRATE TANKS

The 50,000 gallon high nitrate tank and the 100,000 gallon temporary tanks are used to provide surge capacity for high/low nitrate laden process wastewater streams awaiting discharge to the FEMP NPDES permitted wastewater treatment system. The 50,000 gallon tank was constructed with secondary containment. The temporary tanks are double walled.

5.3.5.2 METHANOL FEED TANK

The methanol feed tank has a capacity of 50,000 gallons and is located near the southeastern corner of the Bio-surge Lagoon. The tank is used to store methanol for use at the Biodentification Facility.

5.3.5.3 CONSTRUCTION RUBBLE

A large construction rubble pile is located in the northern reaches of the *4005 watershed basin. This pile contains construction debris from various projects that have been conducted at the site. Current plans call for disposition of this material at an off-site location.

5.3.6 IMPLEMENTED STORMWATER RUNOFF CONTROLS

Stormwater runoff controls for the high and low nitrate tanks and the methanol feed tank consist of a diked pads. Stormwater collected in the secondary containment system is managed in accordance with site procedures.

5.3.7 AREAS OF PLANNED FUTURE INDUSTRIAL ACTIVITY

Design and construction activities associated with the future Vitrification Plant are currently being conducted under the OU4 Remedial Design Process and are in various stages of completion. Industrial stormwater discharges from the Vitrification Plant will be collected and discharged to the NPDES permitted wastewater treatment system during normal operations. However, emergency overflows from the Vitrification Plant Stormwater Retention Basin will be discharge to the drainage ditch directly south of the Vitrification Plant location and will ultimately discharge to Paddys Run. The current site NPDES permit will be modified to reflect the addition of this stormwater discharge prior to startup of the Vitrification Plant in 2003. A complete list of pollutants associated with OU-4 activities is included in the Operable Unit 4 RI/FS report.

5.4 BASIN DESCRIPTION - OUTFALL *4006

5.4.1 TOPOGRAPHY AND LOCATION

Stormwater outfall *4006 is located at a latitude of 39° 18' 14" and a longitude of 84° 41' 51". It drains a relatively undisturbed watershed basin of approximately 197.8 acres as shown in Figure 2-1. Topography within the basin ranges from a high point of approximately 700 feet above mean sea level (MSL) along the northeastern corner of the watershed to a low point of approximately 560 feet MSL near the outfall to Paddys Run.

Current land use within the *4006 watershed basin is largely limited to agricultural grazing. However, several concentrated areas of industrial activity are located within the drainage basin as described in Section 5.4.5 of this Plan.

5.4.2 HYDROLOGY

The *4006 watershed basin is located north of the former production area and is drained by a large perennial drainage ditch that flows in a westerly direction along the southern boundary of the watershed basin and ultimately discharges to Paddys Run via NPDES permit stormwater outfall *4006.

This perennial ditch was delineated as a jurisdictional wetland during the 1993 wetland delineation of the site. In addition to this wetland, a large 26-acre forested wetland was also delineated within the central portion of the watershed basin during the 1993 Site-Wide Wetland Delineation as shown in Figure 2-2. Several small intermittent channels braid their way through the wetland area and converge with the large perennial drainage ditch located along the southern boundary of the watershed. Approximately 16.2 acres of the *4006 watershed are located outside the 1050-acre site boundary. Approximately 2.7 acres of the total 197.8 acre watershed basin is classified as being impervious.

5.4.3 SOIL MORPHOLOGY

Soils within the *4006 watershed basin consist primarily of well drained to moderately well drained silt loams and well drained to very poorly drained silty clay loams with respective hydrology soil group classifications of A/B and A/D. Typical soils encountered within the *4006 drainage basin include Dana silt loam, Eden silty clay loam, Genesee loam, Hennepin silt loam, Miamian-Russell silt loams, Ragsdale silty clay loam, Uniontown silt loam, and Xenia silt loam. A map showing the location of soil types at the Fernald Site is include in Figure 2-3.

5.4.4 STORMWATER DATA HISTORY

Samples from several runoff events were collected at outfall *4006 to support preparation of the 1992 FEMP NPDES Stormwater Permit Application that was submitted to OEPA on October 29, 1992. A table summarizing analytical data on these samples is included in Appendix C of this Plan. Pollutants identified for analysis in the 1992 FEMP NPDES Stormwater Permit application were selected primarily on the basis of process knowledge of activities occurring within the *4006 watershed basin and sampling records collected as part of the ongoing RI/FS process for various OUS at the site.

Biannual sampling is also being conducted at outfall *4006 in accordance with the provisions of the current FEMP NPDES Permit (Ohio EPA Permit No. 1IO00004*ED).

To date only one scheduled NPDES sampling event has occurred at outfall *4006, the results of which are also summarized in Appendix C. NPDES permit driven monitoring requirements for outfall *4006 include: total suspended solids, oil and grease, nitrogen-ammonia, nitrogen-nitrite + nitrate, total phosphorous, total fluoride, total recoverable nickel, total recoverable silver, total recoverable lead, total recoverable chromium, total recoverable copper, dissolved hexavalent chromium, flow, and pH.

5.4.5 AREAS OF INDUSTRIAL ACTIVITY

Since the initiation of site operations in 1951, activity within the on-site portion of the *4006 watershed basin has been largely limited to leased agricultural grazing. Predominate vegetative cover within the on-site portion of the *4006 watershed consists of undisturbed deciduous hardwood forest with underlying areas of open meadow and pasture.

Approximately 7.13 acres of the *4006 basin were seeded with white and Austrian pine in the 1970s and remain in place today. Although the majority of the on-site portions of the basin have lain fallow since construction of the site in 1951, several concentrated areas of industrial activity are located within the watershed, including the former Fire Training Facility (FTF), solid waste landfill, and a temporary sand and salt stockpile area. Stormwater runoff from these areas is collected within a series of drainage ditches located within the basin and is ultimately discharged to Paddys Run via NPDES Permit Stormwater Outfall *4006.

5.4.5.1 FIRE TRAINING FACILITY

The FTF is located along the northern fence line of the former production area. Prior to its closure in May 1995, the FTF was used to provide training to site emergency response personnel and off-site fire departments. The FTF operated in this capacity from 1966 to 1990, during which time hazardous and radiological materials were introduced to the environment in the vicinity of the FTF. Stormwater runoff from this area was collected via a drainage ditch system and was ultimately conveyed to Paddys Run via NPDES Permitted Stormwater Outfall *4006.

In August 1991, the FTF was declared a Hazardous Waste Management Unit (HWMU #1) in the Resource Conservation and Recovery Act (RCRA) compliance schedule submitted pursuant to the Consent Decree negotiated between the State of Ohio and the U.S. Department of Energy (State of Ohio 1988). Remedial activities at the FTF were identified as part of Removal Action No. 28 - Contamination at the Fire Training Facility. In 1993, DOE submitted a combined Removal Action Work Plan and RCRA Closure Plan for the FTF, "Contamination at the Fire Training Facility Removal Action Work Plan and Closure Plan Information and Data Package" to satisfy both CERCLA and RCRA regulatory requirements.

Remedial activities at the FTF where initiated under RA No. 28 in July 1994 and concluded in April, 1995. Activities associated with the removal action consisted primarily of the removal of contaminated structures and the excavation of contaminated soils within the general vicinity of the FTF. These actions were intended to meet the following objectives:

- Minimize the need for further maintenance (or inspection) by decontaminating and removing contaminated portions of the FTF to achieve surface source control

- Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the escape of hazardous waste or hazardous constituents.

Following the excavation of contaminated soils, clean backfill from the FEMP Removal Action No. 17 Class I stockpile was used to re-establish the existing grade of the excavated areas. Class I stock was selected for this purpose because it does not contain any RCRA constituents nor was it generated from a HWMU. Furthermore, these soils exhibit total uranium concentrations of less than 100 picocuries per gram (pCi/g), total thorium concentrations of less than 50 pCi/g and total radium concentrations of less than 5 pCi/g.

Upon completion of excavation and backfill activities, all exposed soil surfaces within the former FTF were reseeded to minimize sediment transport from the area. Sampling and analyses conducted during the course of RA No. 28 confirmed that removal action objectives were met and that releases from the FTF no longer posed a significant threat to the environment. However, further excavation of the area will be required to meet FRLs established under the OU-5 ROD. A complete list of pollutants encountered at the FTF can be found in the RA No. 28 - Contamination at the Fire Training Facility Final Report.

5.4.5.2 SOLID WASTE LANDFILL

The solid waste landfill is located within the OU2 boundary of the site and is approximately one acre in size. The solid waste landfill is located outside the former production area of the site directly northeast of the waste pit area.

Operations at the landfill ceased in 1986 at which time a two foot thick soil cap was placed over the landfill. The soil cap has since become overgrown with vegetative cover consisting primarily of grass and scrub brush. Stormwater runoff in the vicinity of the solid waste landfill is collected and conveyed to Paddys Run via the drainage ditch system directly north of the landfill and ultimately discharges through NPDES permitted stormwater outfall *4006.

Historical use of the solid waste landfill was not well documented, however, the landfill was reportably used for the disposal of cafeteria waste, rubbish, and other types of wastes from non-process areas of the site and on-site construction and demolition activities. A trenching operation conducted within the landfill battery in 1992 has since revealed that cafeteria, laboratory, construction/maintenance, and manufacturing wastes were disposed of in the landfill. A complete list of constituents of concern associated with the solid waste landfill is included in the Operable Unit 2 RI/FS Report.

5.4.5.3 TEMPORARY SAND AND SALT STOCKPILE

The temporary sand and salt stockpile is used to store sand and salt for on-site use during inclement weather conditions. The temporary stockpile is staged on an asphalt pad near the former northern site access road and is covered by a tarp to prevent run-on and run-off during precipitation events. Drainage from the pad is conveyed to Paddys Run via the westerly flowing drainage ditch system located along the southern boundary of the *4006 watershed basin. Planning is underway to transfer the stockpile to a permanent covered facility by 1997. The permanent stockpile facility will be located directly west of the SWRB near the existing site parking lot.

5.4.6 IMPLEMENTED STORMWATER RUNOFF CONTROLS

The following stormwater controls have been implemented within the *4006 watershed basin to minimize runoff contact with industrial activities occurring within

- Temporary Sand and Salt Stockpile - The temporary sand and salt stockpile is staged on an asphalt pad and remains tarped when not in use. These controls effectively preclude transport of sand and salt from the staging area during rainfall events.

5.4.7 AREAS OF PLANNED FUTURE INDUSTRIAL ACTIVITY

Specific information on industrial stormwater discharges and stormwater controls associated with these activities is being addressed as part of the Remedial Design (RD) process for various OUs at the site. Specific activities that will be conducted within the *4006 watershed basin include:

- Onsite Disposal Facility (OSDF) - Design of the OSDF is currently being conducted as part of the OU-2 RD process. Operation of the OSDF is currently scheduled to begin in August 1997.
- OU-1 Borrow Pit - Design of the OU-1 borrow pit is currently being conducted as part of the OU-1 RD process. Excavation of the proposed borrow pit is scheduled to begin in 1998.
- On-site Railyard Upgrades - Design of the railyard upgrades is currently be conducted as part of the OU-1 RD process. Construction is currently scheduled to begin in July 1996.
- OU-1 Stormwater Retention Basins - RD efforts are currently underway for the OU-1 waste pit area of the site. The selected remedy for this area involves the excavation, thermal drying, and off-site shipment/disposal of OU-1 waste pit material. Stormwater runoff from OU-1 process facilities will be collected and controlled for treatment in the existing FEMP NPDES permit wastewater treatment system during normal operations.

  However, the emergency spillway from the stormwater retention basin that is being installed to control runoff from the OU-1 process area will discharge to the drainage ditch along the southern boundary of the *4006 watershed basin.

The spillway will be designed to convey the 100-yr, 24-hr storm event. The existing FEMP NPDES permit may be modified to reflect the addition of this outfall prior to the scheduled startup of the stormwater retention basin in 1996.

5.5 INSPECTION PROGRAMS

NPDES permitted stormwater outfalls *4003, *4004, *4005, and *4006 and areas of industrial activity specified in this Plan will be inspected on a quarterly basis to assess obvious signs of sedimentation and erosional disposition to Paddys Run or other site water bodies and to ensure up-gradient run-off control devices are functioning properly in areas of industrial activity. A discrete SWPPP Industrial Activity Inspection Form (Figure 5-1) will be completed each time an inspection is conducted. These forms will be compiled to create a historical record of housekeeping activities at the expected locations and to document any undue incidence of sediment disposition to Paddys Run.

Completed SWPPP Industrial Activity Inspection Forms will specify the name(s) and title of personnel conducting the inspection, the outfall location and/or area of industrial activity inspected, the date(s) on which inspections were conducted, inspection procedures that were used during the course of the inspection, and major observations resulting from the inspection.

FIGURE 5-1

SWPPP INDUSTRIAL ACTIVITY SITE INSPECTION FORM

Inspector(s): _____ Position(s): _____

Date: _____ Time: _____

Outfall Location and/or Area of Industrial Activity Inspected: _____

_____

_____

SWPPP Project Number: _____

Inspection Schedule: Quarterly Inspection: _____ Other (specify): _____

a. **OBSERVATIONS**

Housekeeping--Are there any noticeable problems with housekeeping at the specified location? _____

_____

_____

Erosion and Sedimentation Control Measures--Are these controls properly installed and maintained? (Specify controls evaluated) _____

_____

_____

Are any outside areas (wetlands, bottom lands, access roads, or any other areas not mentioned in the plan) being impacted? _____

_____

_____

_____

B. **OTHER ITEMS WHICH COULD AFFECT COMPLIANCE WITH THE NPDES PERMIT:** (Specify other relevant observations such as evidence of erosion and/or sedimentation in the inspected area) _____

_____

_____

_____

C. **PROJECT SPECIFIC PRACTICES PROPERLY EMPLOYED:** (Fuel storage, debris management etc.)

_____

_____

_____

_____

(attach additional sheets if necessary)

If any deficiencies are noted, a post-maintenance inspection shall be performed and documented to verify permit compliance.

6.0 CONSTRUCTION ACTIVITY

As presented in Section 1.0, the Fernald Site is now operating under USEPA enforced CERCLA Records of Decision for all five Operable Units. Activities to be undertaken will include the erection of various facilities to process waste material for on-site storage and/or off-site disposition. The erection of these facilities involve routine construction activities such as clearing, grading, etc. This section defines the FEMP methodology for ensuring that appropriate erosion control measures are implemented.

A significant portion of site activities will involve the excavation of contaminated soils and waste units to achieve specified remediation goals in the form of Final Remediation Levels (FRLs). Removal of contaminated soils and waste units will provide for the protection of the underlying Great Miami Aquifer from vertical contamination pathways, the protection of the Great Miami River and Paddys Run by reducing contaminated stormwater discharges, and the attainment of the necessary soil quality to sustain an appropriate future land use.

These FRLs, their development, and schedule for achievement are a matter of public record and will not be reiterated in this document. However, erosion control and stormwater management issues associated with these types of remedial activities may be driven by remedial goals the FEMP is attempting to achieve.

The FEMP will implement erosion control and stormwater management during site construction/excavation activities through an integrated program beginning with the initial planning; through the preparation of detailed design documents and the installation of the required controls; an inspection program of those controls ensuring they are functioning properly; a sampling program to trend the impacts on down gradient discharge points; and a documentation file providing a record of all activities through final stabilization. The following sub-sections describe the FEMP methodology for controlling stormwater and sediment associated with construction activity, soil excavations, and waste unit excavations.

6.1 PLANNING AND DESIGN

Effective implementation of erosion control and stormwater management strategies depends on addressing these issues early in the planning phase of a project. The erosion control measures and stormwater management strategies must be appropriate for the area of construction activity and must be clearly transferred from a conceptual plan to the detailed design while maintaining the ability and constructability of the activity.

Erosion control will be incorporated into all construction/excavation activities. Design engineers will be directed to include erosion control measures to mitigate sediment loading to the production area storm sewer system when the activity takes place in the former production area; or, to protect down-gradient areas when the activity is outside the former production area. Design standards to be incorporated into the detailed design documents will follow "Rainwater and Land Development, Ohio's Standards for Stormwater Management Land Development and Urban Stream Protection," Second Edition 1996, Prepared by the Ohio Department of Natural Resources. The design storm events to be considered are identified in Table 6-1

TABLE 6-1

TYPE II, 24-HOUR, RAINFALL DISTRIBUTION

County	1-yr.	2-yr.	5-yr.	10-yr.	25-yr.	50-yr.	100-yr.
Butler	2.5	2.9	3.6	4.1	4.7	5.2	5.6
Hamilton	2.5	3.0	3.6	4.1	4.8	5.2	5.7

Stormwater management may differ among activities depending on the material to be excavated, the contaminants of concern in the area, contaminant concentrations, and the remediation goals to be achieved.

The requirement to provide treatment for stormwater generated during construction and/or excavation will be evaluated for generally two types of activities: 1) remedial activities outside the former production area involving soil excavations or other earth moving activities; and 2) remedial activities involving excavation of waste units. Activities within the former production area and waste pit area are already controlled such that stormwater runoff is collected for treatment through the AWWT.

It is the intent of the FEMP to minimize the stormwater treatment requirements through prioritization, pollutant source isolation and excavation sequencing, and limiting the duration of open excavations. The emphasis to minimize treatment is necessary to reflect the finite treatment capacity available at the site.

The need to provide treatment is best determined through a comparison to existing conditions. This methodology acknowledges the fact that stormwater runoff beyond the former production area is currently uncontrolled and attempts to consider whether or not stormwater degradation will occur during the period of excavation. For instance, soils experiencing surface contamination only may be removed in a manner such that degradation would not be expected. However, in areas where there is considerable sub-surface contamination, the removal of the surface soils would expose the sub-surface contamination thus degrading the stormwater with which it comes into contact. This is particularly true for waste unit excavations.

A modeling methodology (Surface Water Flow and Infiltration Model, Draft Final, November 1993) has been developed representing the approach to be used to calculate the concentration of contaminants in Paddys Run and the SSOD. The methodology first describes certain flow characteristics including, the simulation of run-off, the simulation of flow into Paddys Run and the SSOD; and the simulation of infiltration through the stream beds to the aquifer.

Contaminant characteristics are determined recognizing the contaminant under evaluation can move with the runoff in two phases; adsorbed to sediment eroded from the land surface or dissolved in the run-off itself. The amount of sediment generated during a storm event; the amount adsorbed to the sediment and the amount dissolved are all determined using standard equations from the Superfund Exposure Assessment Manual (EPA, 1988). The combined information (flow and contaminant) can then be used to develop the required surface water protective requirements for sediments, the aquifer and surface water. If these protective requirements cannot be met stormwater treatment should be considered.

Areas of excavation which will require treatment will be managed through the SWRB. Activities will be coordinated to ensure the SWRB capacity is maintained (10-year, 24-hour storm event). Stormwater treatment requirements will be specified in the design criteria documents for the activity in question. These discrete design activities are defined in the individual Operable Unit remedial design work plan and are subject to OEPA review.

> **NOTE:** So that the hydraulic capacity of the SWRB can be maximized, opportunities to divert clean stormwater from the SWRB will be continuously pursued. This includes directing clean stormwater away from the controlled storm sewer system and the diversion of stormwater from the "cleaned" production area as the remediation progresses. Diversion of stormwater within the former production area will be made only after the area in question has been determined "clean" according to the associated remedial action work plan.

An immediate opportunity to maximize SWRB hydraulic capacity involves directing stormwater runoff from the parking lot area to the uncontrolled storm sewer outfall ditch. The parking lot area is a non-uranium contaminated area unrelated to past industrial operations or future remedial activities. This diversion project is scheduled for completion by September 30, 1996.

6.2 INSPECTIONS

An important facet in implementing stormwater pollution prevention is the routine inspection of construction sites and the evaluation of these sites against specific inspection procedures. All erosion and sediment controls, for every construction activity, will be inspected at least once every seven calendar days and within 24 hours of any storm event measuring greater than 0.5 inches of rain in a 24 hour period. These routine inspections will not only evaluate the effectiveness of the erosion/sediment controls but will also evaluate other practices which could contribute to stormwater pollution and look for evidence of pollutants entering down-gradient areas. The actual points of discharge (Outfalls *4003, *4004, *4005, and *4006) will also be observed weekly to assess whether the up-gradient control devises are preventing significant impacts to Paddys Run.

A SWPPP Site Inspection Form (Figure 6-1) shall be completed by the inspector each time an inspection is performed. A record which summarizes the results of the inspection shall be created. This record shall include the name(s) and titles of personnel making the inspection, the date(s) of the inspection, the inspection procedures used, and the major observations relating to the implementation of the SWPPP. Such records shall identify any incidents of non-compliance. Figure 6-2 contains inspection procedures for the type of activities typically encountered at the FEMP. If necessary, additional procedures may be written and included in the SWPPP file.

A final inspection will be conducted to verify that: 1) the disturbed area has achieved final stabilization including grading and sufficient vegetative cover; 2) erosion and sediment control devices have been removed including all accumulated sediments; and 3) the area has been cleaned of any waste materials (cans, containers, debris, bags, etc.).

Figure 6-1
SWPPP CONSTRUCTION SITE INSPECTION FORM

Inspector:_____ Position: _____
Date:_____ Time:_____
Project Title:_____
SWPPP Project Number:_____
Circle one of the following: Weekly Inspection 0.5 inches rainfall

a. **HOUSEKEEPING**
Are there any noticeable problems with housekeeping?

_____
_____
_____

B. **EROSION AND SEDIMENT CONTROL MEASURES**
Have the control measures specified on the SWPPP Site Description for Construction Activity Form been installed and implemented? (Indicate brief description of controls)

_____
_____
_____

Are these controls being properly maintained?

_____
_____
_____

C. **PERIMETER PROTECTION**
Are any outside areas (wetlands, bottom lands, access roads, or any other areas not mentioned in the plan) of the disturbed area being impacted?

_____
_____
_____

D. **OTHER ITEMS WHICH COULD AFFECT COMPLIANCE WITH THE NPDES PERMIT:** (An inspection of the downstream points should be inspected for evidence of excessive siltation.)

_____
_____
_____

E. **PRODUCT SPECIFIC PRACTICES PROPERLY EMPLOYED:** (Fuel storage, debris management etc.)

_____
_____
_____

(attach additional sheets if necessary)

Figure 6-2

CONSTRUCTION ACTIVITY
MAINTENANCE/INSPECTION PROCEDURES

EROSION AND SEDIMENT INSPECTION PROCEDURES

- All control measures identified on the SWPPP Site Description for Construction Activity form will be inspected at least once per week and following any storm event of 0.5 inches in a 24-hour period.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of the report.
- Silt fence will be inspected for depth of sediment, tears, fabric securely attached to the posts, and the posts firmly in the ground. Built up sediment will be removed from the silt fence as directed by FERMCO (one-third the height of the fence).
- Sediment basins and sediment traps will be inspected for sediment depth. Berms will be inspected for breaches. Berms are appropriately stabilized. Sediment removal will be as directed by FERMCO.
- Diversion dikes will be inspected for breaches.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.

HOUSEKEEPING INSPECTION PROCEDURES

- All materials stored will be stored in a neat, orderly manner in their original containers, and if possible, containers protected from weather.
- Products will be kept in their original containers with the original manufacturers label. MSDS will be checked for availability.
- Empty containers are not stored on site.

SPILL PREVENTION AND CONTROL INSPECTION PROCEDURES

- Vehicles will be checked for leaks. Petroleum products will be stored in tightly sealed containers.
- Spill equipment appropriate for the materials being stored including spill pigs, sand, sawdust, etc. available in the area. Secondary containment provided where appropriate.
- Fertilizers will not be stored in the open. New and used bags will be stored under cover or in a sealable container.

NON-STORMWATER INSPECTION PROCEDURES

- The area will be evaluated for non-stormwater discharges such as vehicle washing, pavement washing, groundwater from excavation, all of which can be expected to a certain degree, to ensure they are appropriately managed.

6.3 SAMPLING

During the planning and design phases of a particular activity an evaluation of the potential to sample stormwater from the activity will be performed. Sampling will be used to provide an indication of how the specific activity may be impacting the actual NPDES discharge points to Paddys Run.

The decision to sample will take into account whether there is a discrete stormwater conveyance amenable to sampling and the type of activity being undertaken. Generally sampling will be considered for only those activities where sources of contamination are being removed to accomplish site remedial goals (waste unit excavations and soil excavations) and where the resulting stormwater is discharged to the uncontrolled drainage basins discharging to Paddys Run. The specific sampling program, if required, will be specified in the design criteria documents for the activity in question. These discrete design activities are defined in the individual Operable Unit remedial design work plan.

Sampling parameters will include those identified in the NPDES Permit for Outfalls *4003, *4004, *4005, and *4006 as well as any other contaminant of concern in the area of activity which can reasonably be expected to appear in stormwater. At a minimum, the sampling parameters will consist of TSS, oil & grease, nickel, silver, lead, chromium, copper, and uranium.

Sample collection, preservation, and analysis will conform to 40 CFR 136. Composite samples (2 - 4 aliquots collected over the duration of the discharge event) will be specified where appropriate. Targeted sampling events will include a sample collected after the erosion control devise is installed, but prior to the activity being undertaken; once during every major phase of the activity; and once after the activity has been completed. Sample results will be reported through the Integrated Environmental Monitoring Plan and filed in the SWPPP documentation file.

6.4 DOCUMENTATION

The SWPPP Documentation File will be the basis for the FEMP to demonstrate successful implementation of the SWPPP as it relates to construction activity. The documentation file will be established for a particular activity through the SWPPP Site Description for Construction Activity form (Figure 6-3). An alpha numeric numbering system will be established for each SWPPP project file. The number will be initialized by OU1, OU2, OU3, OU4, OU5 indicating if the activity is driven by a specific operable unit; or, by "GEN" if it is a general site construction activity.

The SWPPP Site Description for Construction Activity form provides for a description of the activity, proposed disturbed area, runoff coefficients calculated before and after the activity, and a description of all practices to be implemented to control erosion and properly manage stormwater. Attached to this form will be the design drawings or sketches showing the limits of the activity and the location of the erosion and sediment control measures. In addition an actual construction schedule or a description of the major activities related to erosion and sediment control will also be attached to this form.

The documentation file will include all routine inspection forms related to the activity including the detailed inspection procedures, the final inspection documenting final stabilization, any sampling data accumulated during the activity, and all pertinent correspondence related to the activity (pre-construction and/or construction meeting agendas and minutes, memos related to stormwater control, etc.). The documentation file will be stored for a minimum of three years in the offices of the Environmental Compliance division and then managed in accordance with the FEMP document/archive process.

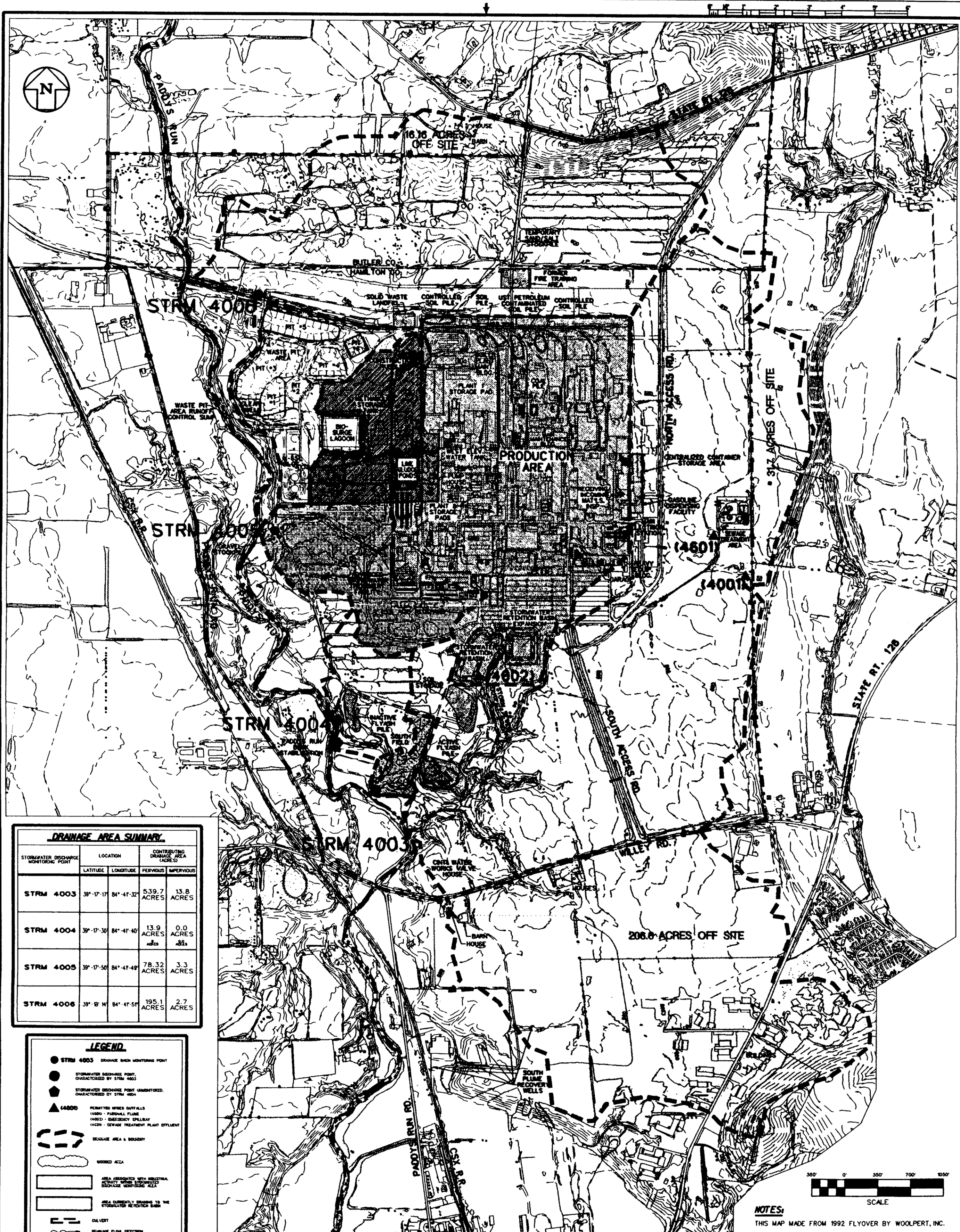
Figure 6-3

SWPPP SITE DESCRIPTION FOR CONSTRUCTION ACTIVITY	Completed by:_____ Date:_____ Project Title:_____ SWPPP Project Number:_____
Construction activity description:	
Total area of construction site:	Area of site to undergo excavation, filling, or grading:
Pre-construction runoff coefficient:	Post-construction runoff coefficient:
EROSION/SEDIMENT CONTROL MEASURES	
1. Stabilization Practices:	
2. Structural Practices:	
3. Stormwater Management:	
4. Waste Materials/Excavated Materials Management:	
Name of the receiving stream and downstream NPDES monitoring location:	
Attach a design drawing(s) defining the construction boundary:	

********* Webmaster's Note *******

To accommodate printing on a typical laser printer, the following drawing on page 34 has been reduced to 70 percent of its normal size.

********* Webmaster's Note *******



DRAINAGE AREA SUMMARY

STORMWATER DISCHARGE MONITORING POINT	LOCATION		CONTRIBUTING DRAINAGE AREA (ACRES)	
	LATITUDE	LONGITUDE	PERVIOUS	IMPERVIOUS
STRM 4003	39°-17'-17"	84°-41'-32"	539.7 ACRES	13.8 ACRES
STRM 4004	39°-17'-30"	84°-41'-40"	13.9 ACRES	0.0 ACRES
STRM 4005	39°-17'-50"	84°-41'-49"	78.32 ACRES	3.3 ACRES
STRM 4006	39°-18'-14"	84°-41'-51"	195.1 ACRES	2.7 ACRES

LEGEND

- STRM 4003 — DRAINAGE BASIN MONITORING POINT
- STORMWATER DISCHARGE POINT, CHARACTERIZED BY STRM 4003
- STORMWATER DISCHARGE POINT UNMONITORED, CHARACTERIZED BY STRM 4004
- (4600) PERMITTED NPDES OUTFALLS
  - (4001) - PARSHALL FLUME
  - (4002) - EMERGENCY SPILLWAY
  - (4601) - SEWAGE TREATMENT PLANT EFFLUENT
- DRAINAGE AREA & BOUNDARY
- WOODED AREA
- AREA ASSOCIATED WITH INDUSTRIAL ACTIVITY WITHIN STORMWATER DISCHARGE MONITORING AREA
- AREA CURRENTLY DRAINING TO THE STORMWATER RETENTION BASIN
- CULVERT
- DRAINAGE FLOW DIRECTION
- CONTOUR INTERVAL (IN FT.) ABOVE M.S.L.
- PAVED ROAD
- UNPAVED ROAD
- FENCE LINE
- PROPERTY LINE

NOTES:

THIS MAP MADE FROM 1992 FLYOVER BY WOOLPERT, INC.

CONTOUR INTERVAL:
5' - INSIDE FEMP BOUNDARY
5' - OUTSIDE FEMP BOUNDARY

DRAINAGE AREAS AND OTHER PERTINENT INFORMATION ON THIS DRAWING APPEAR IN COLOR.

CULVERTS LOCATED ARE TO ASSIST IN SHOWING DRAINAGE FLOW DIRECTION. ALL CULVERTS ARE NOT SHOWN.

NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
3	REDRAWN/REVISED PER RES #2910	3/7/96	SJS	GEP	
2	REVISED PER RES #2534-ADDED 1992 TOPO		MET	GEP	
1	REVISED DRAINAGE AREA STRM 003 & ADDED OFF SITE AREA		JML	GEP	75X-5500-G-00205

NOTE: FERMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

PERFORMANCE GRADE 1 2 3 4 5

APPROVALS: CIVIL & STR. / ELECTRICAL / ENGINEER / INSTRUMENT / MECHANICAL / COMPLIANCE / CHECKED / APPROVED — SAFETY ENG. / MAINTENANCE / Q.A. / FIRE PROTECT. / WASTE MANAGE. / SECURITY / CRU

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
Fernald
Environmental Management Project
U.S. DEPARTMENT OF ENERGY

FEMP DRAINAGE AREA MAP

FIG. 2-1

SCALE: 1" = 350'

DATE 9/20/91

00X-5500-G-01781 3

FILE NAME: /RES2910/00XG1781.DGN